

**Amendments to the Claims**

The listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

- 5     1. (currently amended) An optical drive system comprising:
- an optical disc;
- an object lens for focusing light on the optical disc;
- a tilt servo for adjusting a tilt angle between the optical disc and the object
- lens;
- 10     an optical electric integrated circuit (OEIC) for detecting light reflected from
- the optical disc;
- a DPD generator for generating a differential phase detection (DPD) signal
- according to the output of the OEIC; and
- a tilt search block receiving the DPD signal and being connected to the tilt
- 15     servo, wherein the tilt search block controls the tilt servo to adjust the
- tilt angle between the optical disc and the object lens according to the
- DPD signal, and when controlling the tilt servo to adjust the tilt angle
- between the optical disc and the object lens according to the DPD
- signal, the tilt search block controls the tilt angle to finding an optimal
- 20     tilt angle, wherein the optimal tilt angle associates with having a
- lowest amplitude DPD signal.
- 25     2. (original) The optical drive system of claim 1, wherein the tilt search block
- further comprises an amplifier for amplifying the DPD signal such that the
- amplified DPD signal corresponds to a maximum allowable input signal
- level for the tilt search block, and the tilt search block controls the tilt servo
- to adjust the tilt angle between the optical disc and the object lens according
- to the amplified DPD signal.
- 30     3. (original) The optical drive system of claim 1, wherein the tilt search block
- further comprises an analog to digital converter to convert the DPD signal to

a digital DPD signal, and the tilt search block controls the tilt servo to adjust the tilt angle between the optical disc and the object lens according to the digital DPD signal.

5 4. (cancelled)

10 5. (currently amended) The optical drive system of claim 1, wherein to control the tilt angle to [[find]] the optimal tilt angle~~having the lowest amplitude DPD signal~~, the tilt search block controls the tilt servo to adjust the tilt angle to a first plurality of angles, measures the amplitudes of the DPD signals for the first plurality of angles, controls the tilt servo to adjust the tilt angle to a second plurality of angles centered at the angle ~~having~~ associated with the lowest amplitude DPD signal in the first plurality of angles, and measures the amplitudes of the DPD signals for the second plurality of angles to  
15 control the tilt angle to [[find]] the optimal tilt angle.

20 6. (original) The optical drive system of claim 5, wherein the angle spacing between the first plurality of angles is larger than the angle spacing between the second plurality of angles.

25 7. (currently amended) The optical drive system of claim 1, wherein the tilt search block iteratively scans a plurality of angles, each plurality of angles having decreasing angle differences, until the tilt angle is controlled to the optimal tilt angle ~~having the lowest amplitude DPD signal is found.~~

30 8. (currently amended) A method of calibrating the tilt angle between an optical disc and an object lens in an optical storage device, the method comprising the following steps:  
providing a tilt servo for adjusting the tilt angle between the optical disc and  
the object lens;  
providing an optical electric integrated circuit (OEIC) for detecting light

reflected from the optical disc;  
generating a differential phase detection (DPD) signal according to the  
output of the OEIC;  
controlling the tilt servo to adjust the tilt angle between the optical disc and  
5 the object lens according to the DPD signal; and  
when controlling the tilt servo to adjust the tilt angle between the optical  
disc and the object lens according to the DPD signal, controlling the  
tilt angle to finding an optimal tilt angle, wherein the optimal tilt angle  
associates with having a lowest amplitude DPD signal.

10

9. (original) The method of claim 8, further comprising amplifying the DPD  
signal, and controlling the tilt servo to adjust the tilt angle between the  
optical disc and the object lens according to the amplified DPD signal.

15 10. (original) The method of claim 8, further comprising converting the DPD  
signal to a digital DPD signal, and controlling the tilt servo to adjust the tilt  
angle between the optical disc and the object lens according to the digital  
DPD signal.

20 11. (cancelled)

12. (currently amended) The method of claim 8, wherein controlling the tilt angle  
to finding the optimal tilt angle having the lowest amplitude DPD signal  
comprises controlling the tilt servo to adjust the tilt angle to a first plurality  
25 of angles, measuring the amplitudes of the DPD signals for the first plurality  
of angles, controlling the tilt servo to adjust the tilt angle to a second  
plurality of angles centered at the angle having associated with the lowest  
amplitude DPD signal in the first plurality of angles, and measuring the  
amplitudes of the DPD signals for the second plurality of angles to control  
30 the tilt angle to [[find]] the optimal tilt angle.

13. (original) The method of claim 12, wherein the angle spacing between the first plurality of angles is larger than the angle spacing between the second plurality of angles.
- 5 14. (currently amended) The method of claim 13, wherein controlling the tilt angle to finding the optimal tilt angle ~~having the lowest amplitude DPD-signal~~ comprises iteratively scanning a plurality of angles having decreasing angle differences until the tilt angle is controlled to the optimal tilt angle ~~having the lowest amplitude DPD-signal is found~~.
- 10 15. (currently amended) The optical drive system of claim 1, wherein the tilt search block is further for controlling the tilt angle to finding the optimal tilt angle by comparing only different amplitudes of the DPD signal corresponding to different tilt angles, ~~the optimal tilt angle having the lowest amplitude DPD-signal~~.
- 15 16. (previously presented) The optical drive system of claim 1, wherein the tilt search block is further for setting the tilt angle between the optical disc and the object lens to the optimal tilt angle.
- 20 17. (currently amended) The method of claim 8, further comprising controlling the tilt angle to finding the optimal tilt angle by comparing only different amplitudes of the DPD signal corresponding to different tilt angles, ~~the optimal tilt angle having the lowest amplitude DPD-signal~~.
- 25 18. (previously presented) The method of claim 8, further comprising setting the tilt angle between the optical disc and the object lens to the optimal tilt angle.
- 30 19. (previously presented) An optical drive system comprising:  
an optical disc;

an object lens for focusing light on the optical disc;  
a tilt servo for adjusting a tilt angle between the optical disc and the object lens;  
an optical electric integrated circuit (OEIC) for detecting light reflected from  
5 the optical disc;  
a DPD generator for generating a differential phase detection (DPD) signal according to the output of the OEIC; and  
a tilt search block receiving the DPD signal and being connected to the tilt servo, wherein the tilt search block controls the tilt servo to adjust the  
10 tilt angle between the optical disc and the object lens according to only the DPD signal.

20. (previously presented) A method of calibrating the tilt angle between an optical disc and an object lens in an optical storage device, the method  
15 comprising:  
providing a tilt servo for adjusting the tilt angle between the optical disc and the object lens;  
providing an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;  
20 generating a differential phase detection (DPD) signal according to the output of the OEIC;  
controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens according to only the DPD signal.

25 21. (currently amended) An optical drive system comprising:  
an optical disc;  
an object lens for focusing light on the optical disc;  
a tilt servo for adjusting a tilt angle between the optical disc and the object lens;  
30 an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;

a DPD generator for generating a differential phase detection (DPD) signal according to the output of the OEIC; and  
a tilt search block receiving the DPD signal and being connected to the tilt servo, wherein the tilt search block controls the tilt servo to adjust the tilt angle between the optical disc and the object lens to a plurality of angles and then controls the tilt angle to ~~[[finds]]~~ a specific tilt angle selected from the plurality of angles according to the DPD signal.

22. (currently amended) A method of calibrating a tilt angle between an optical disc and an object lens in an optical storage device, the method comprising:  
providing a tilt servo for adjusting the tilt angle between the optical disc and the object lens;  
providing an optical electric integrated circuit (OEIC) for detecting light reflected from the optical disc;  
generating a differential phase detection (DPD) signal according to the output of the OEIC; and  
controlling the tilt servo to adjust the tilt angle between the optical disc and the object lens to a plurality of angles, and then controlling the tilt angle to ~~finding~~ a specific tilt angle selected from the plurality of angles according to the DPD signal.